

ABSTRACT

A plasma device which is provided with a container (100), a gas supply system, and an exhaust system. The container (100) is composed of a first dielectric plate (102) made of a material capable of transmitting microwaves. An antenna (201) for radiating microwaves is located on the outside of the container (100), and an electrode (109) for holding an object (104) to be treated is located inside the container (100). The microwave radiating surface of the antenna (201) and the surface of the object (104) to be treated with plasma are positioned in parallel and opposite to each other. A wall section of the container (100) other than that constituting the first dielectric plate (102) is composed of a member of a material having electrical conductivity higher than that of aluminium, or the internal surface of the wall section is covered with the member. The thickness (d) of the member is larger than $2/(\mu_0\sigma)^{1/2}$, where σ , μ_0 and ω respectively represent the electrical conductivity of the member, the permeability of vacuum and the angular frequency of the microwaves radiated from the antenna.

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